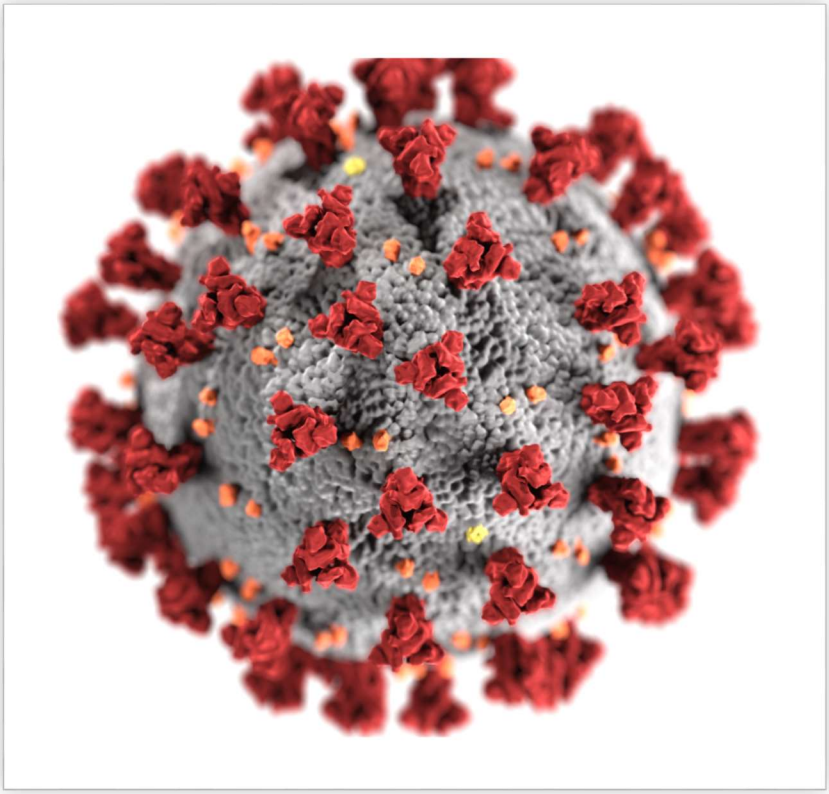

COVID-19

[WEB-BASED APPLICATION]

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1 DESIGNING OF THE APPLICATION

- **CONCEPTUALIZATION**

To design this application, suitable ideas must first be generated and necessary research must be carried out with regards to the virus and features required such as detection, display, degree of infection and others. These ideas must be ideal, along with a planning phase that isn't too extensive especially considering the rapid spread of Covid-19. The general purpose of this application which is to add to the combat against Covid-19 through detection and examination should not be elapsed.

- **SPECIFICATION**

The specification of this web-based application must be precise. Hence, we required the use of a system that had adequate security for data management and one which is also tranquil for usage and efficient in feedback. We then concluded that implementing an independent web-based application system was the viable choice.

- **DESIGN**

In considering the design, flowcharts and algorithms (which would be displayed further in this presentation) must be used to describe and represent the various stages in the design process of the web-based application.

In this stage, some processes must be further observed:

Sketching≤PlanningTheWorkFlow≥PrototypingtheUI

❶**SKETCHING:** This is an excellent way to quickly explore concepts such as navigation, branding, buttons and other necessary interactive elements needed for easy communication between patients and health personnel. This stage will also aid the visual exploration of the users and to quickly evaluate layout choices.

❷**PLANNING THE WORKFLOW:** The workflow must be idealistic to the possible various users of the application. It must include details about the signup/log in process, a guide to using the application, aid to help users who have forgotten their passwords etc.

❸**PROTOTYPING THE USER INTERFACE:** It is essential that after a blueprint of the web-based application is designed (wire framing) after which, prototyping must be done including an interactive display. This will ultimately result in a better understanding for everyone involved. The prototype however must consists of an application server with Tomcat, Database server with PostgreSQL, Web server with Apache and Web application with JAVA technologies and they must all be accurately tested before implementation can begin.

- **IMPLEMENTATION**

During this stage in designing of the application, codes using programming language are employed.

Also, the necessary Guide User Interface tools are chosen. It should be noted that there are different segments of GUI tools

depending on their usage and the platform employed such include Mobile, Computer and Touch-Screen GUI.

- **TESTING & DEBUGGING**

When designing an application there is always a possibility of logical and syntax errors (bugs). Therefore, we must run and test the application in order to locate and eliminate any such errors in order for the application to fulfill all its functionalities.

- **RELEASE & UPDATE**

At this point, the users are also finally granted access and give out necessary feedback. Therefore, this Covid-19 application is now able to detect, display the degree of virus, store, transmit and access data through the web together and its update when necessary based on feedback from health care centers and personnel.

❷HARDWARE & SOFTWARE FEATURES

HARDWARE FEATURES

This will include:

- ❖ A SENSORING SYSTEM: It will take the temperatures of patients and check their vitals as well
- ❖ A DISPLAY SYSTEM: Possesses the responsibility of displaying the result obtained from the sensoring system.
- ❖ PRINTER: This will further print out the final result, with necessary information of healthcare centers the

patient can easily access for treatment if found positive to the virus.

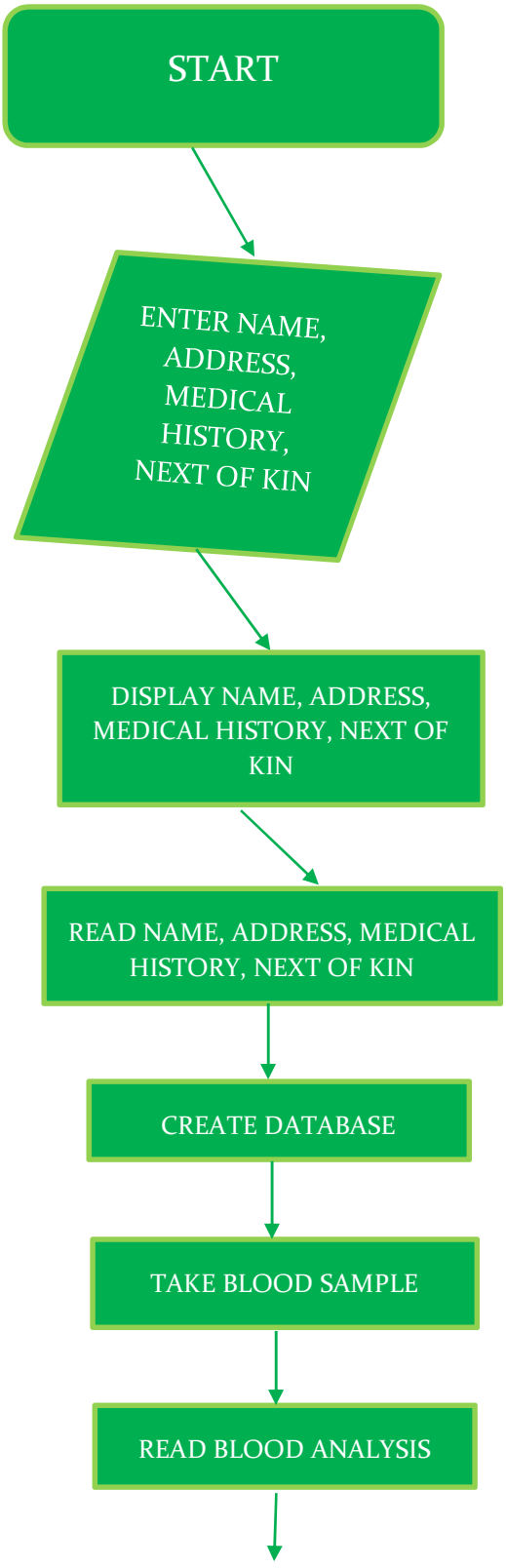
SOFTWARE FEATURES

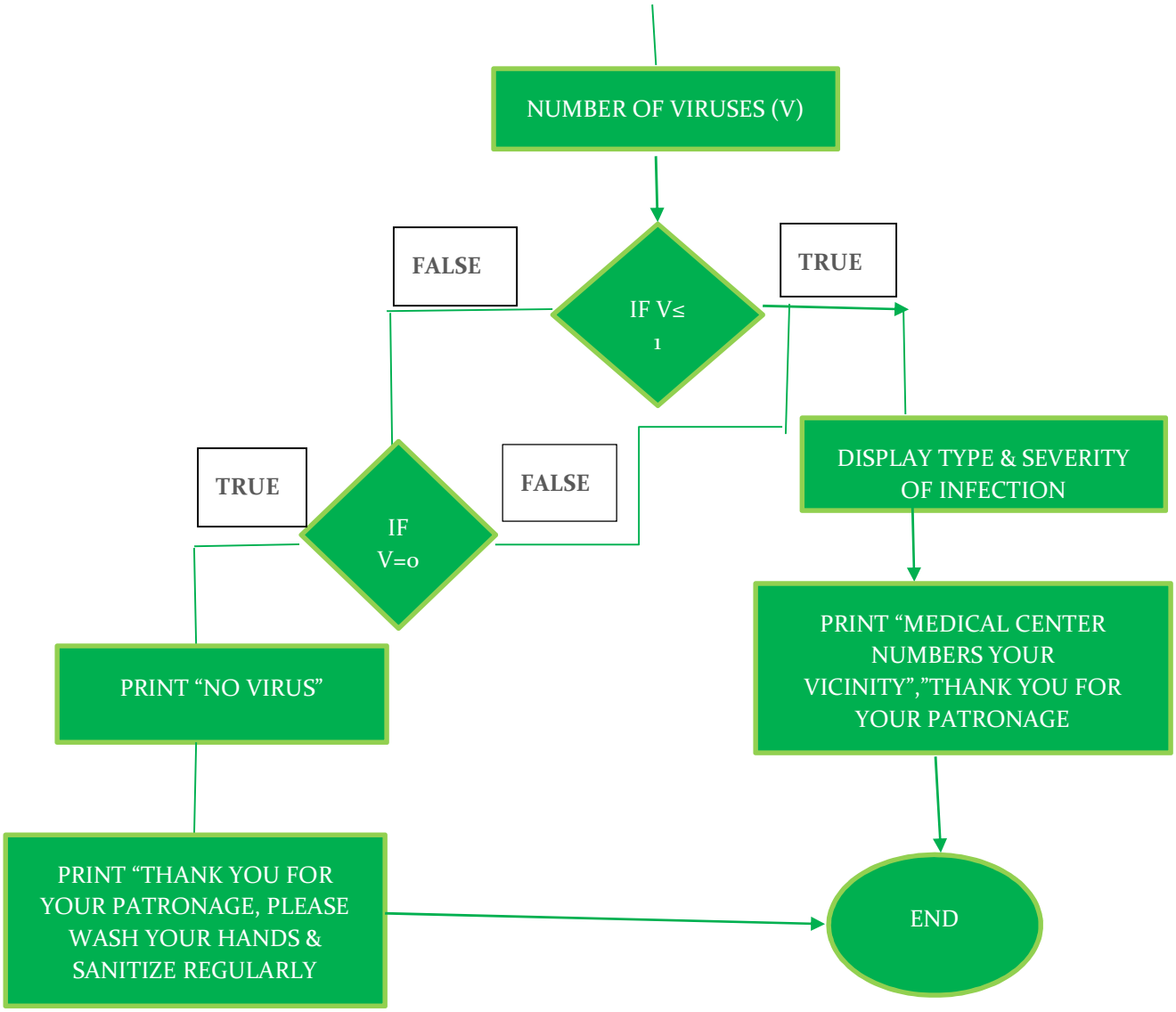
This features need to be installed on a computer system to provide optimal functioning of the application. They include:

- BIOMETRIC IDENTIFICATION: This employs the use of optimal scanners that can help to keep track and data of individuals. During this process, the skin structure on the fingertip is being scanned to determine their vital signs.
- DATA MANAGEMENT: This permits the healthcare personnel to electronically add and store data on patients.
- VIDEO RECORDING AND TWO-WAY VIDEO CONNECTION: This aids patients to describe and display their body status, possible triggers/symptoms and also permits them to visually communicate with the healthcare workers.
- E-PRESCRIBING: Through this, medical practitioners can electronically and directly send necessary prescriptions to pharmacies.
- PATIENT HISTORY: This displays the health history if patients such as allergies, health conditions and history and so on.

(It should be noted that these features come under the specification process)

3 FLOWCHART


START
ENTER NAME, ADDRESS, MEDICAL HISTORY, NEXT OF KIN
DISPLAY NAME, ADDRESS, MEDICAL HISTORY, NEXT OF KIN
READ NAME, ADDRESS, MEDICAL HISTORY, NEXT OF KIN
CREATE DATABASE
TAKE BLOOD SAMPLE
READ BLOOD ANALYSIS



4 ALGORITHM

STEP 1: **BEGIN**

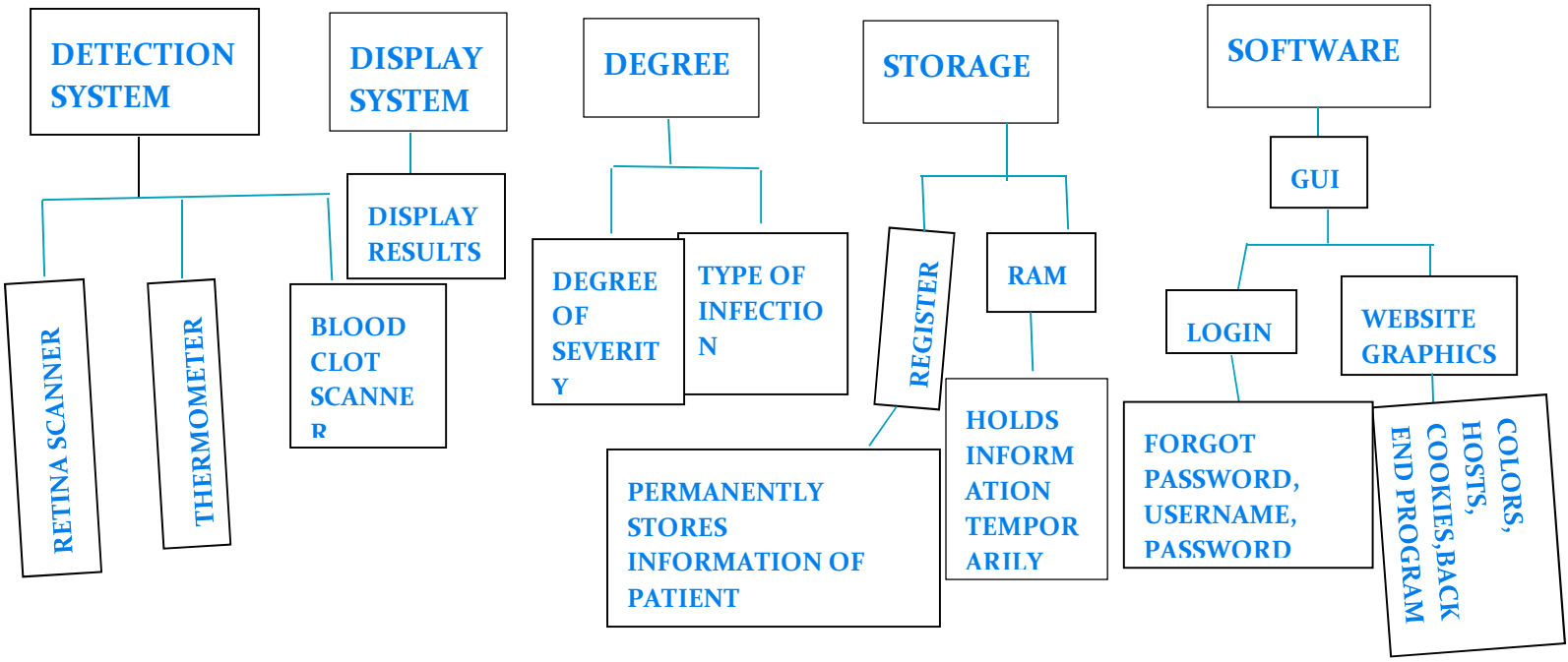
STEP 2: **ENTER NAME, ADDRESS, MEDICAL HISTORY, NEXT OF KIN (N)**

STEP 3: **DISPLAY "INPUT NAME, ADDRESS, MEDICAL HISTORY, NEXT OF KIN"**

STEP 4: **READ NAME, ADDRESS, MEDICAL HISTORY, NEXT OF KIN**

STEP 5: **CREATE DATABASE**

STEP 6: **TAKE BLOOD SAMPLE**
STEP 7: **READ BLOOD ANALYSIS "TEST FOR COMMON AILMENTS"**
STEP 8: **NUMBER OF VIRUSES & INFECTIONS (V)**
STEP 9: **IF V= 0, PRINT ("N" IS NOT INFECTED)**
STEP 10: **IF V ≤ 1, PRINT ("N" IS NOT INFECTED)**
STEP 11: **IF V ≥ 1, PRINT ("N" IS INFECTED)**
STEP 12: **SAVE RESULTS TO THE REGISTER**
STEP 13: **IF V ≥ 1, DISPLAY (MEDICAL CENTER NUMBERS IN HIS/HER VICINITY)**
STEP 14: **PRINT "THANK YOU FOR YOUR PATRONAGE, PLEASE ENSURE TO WASH YOUR HANDS & SANITIZE REGULARLY"**
STEP 15: **END**

5 TOP-DOWN DESIGN APPROACH OF THE APPLICATION

APPLICATION